

OPERATING SUMMARY

CITY OF
TIMMINS
WATER POLLUTION CONTROL PLANT

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TIMMINS
WATER POLLUTION CONTROL PLANT

operated for
THE CITY OF TIMMINS
by the
MINISTRY OF THE ENVIRONMENT

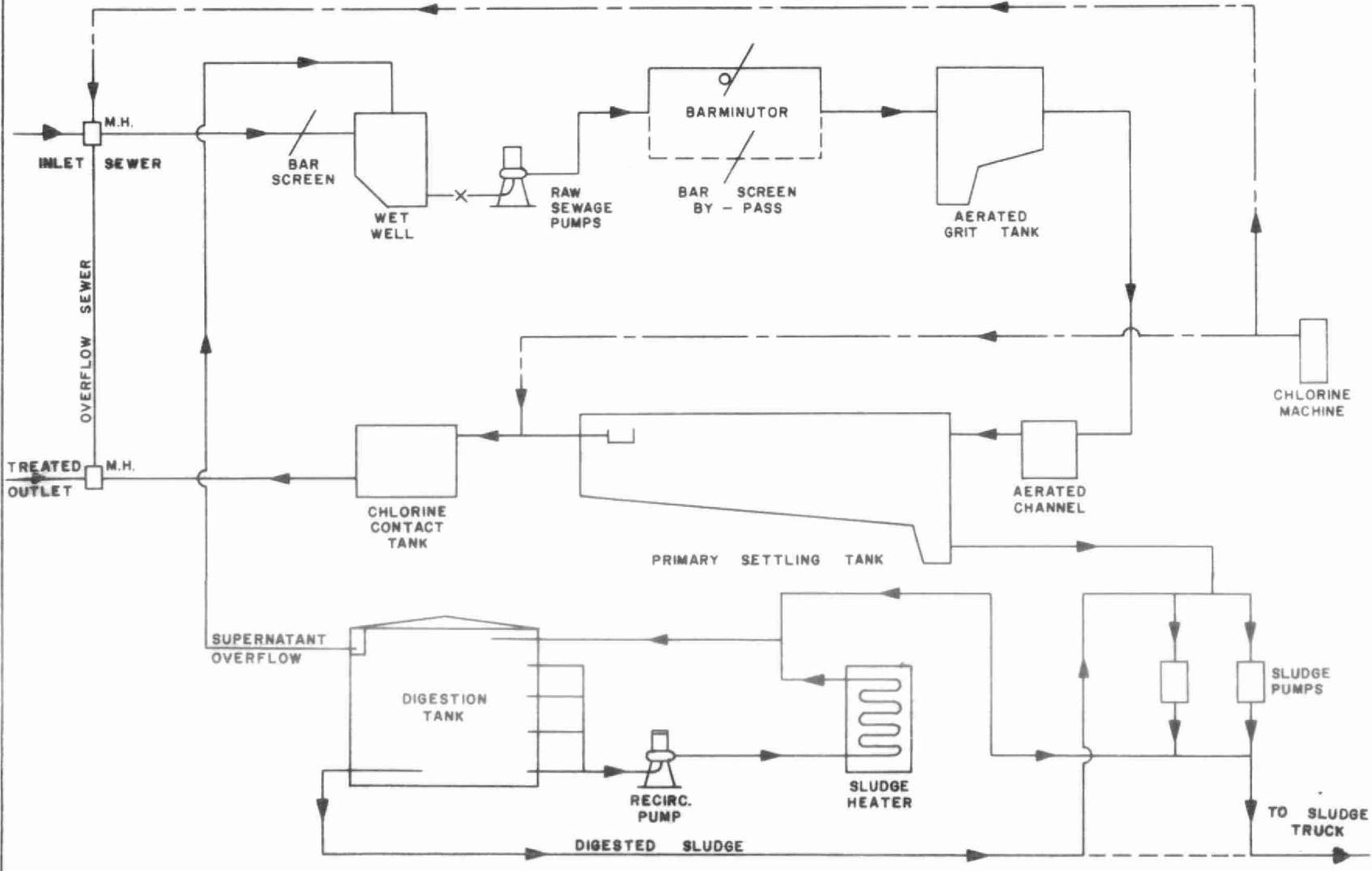
1974 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

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TIMMINS WPCP



DESIGN DATA

PROJECT City of Timmins WPCP

PROJECT NO. 2-0071-60

TREATMENT Primary

DESIGN FLOW 3.0 mgd

DESIGN POPULATION 30,000

BOD - Raw Sewage 180 mg/l
- Removal 35-40%

SS - Raw Sewage 200 mg/l
- Removal 60-65%

RAW SEWAGE PUMPS

Screening

Type: Manually Cleaned
Size: 2' opening

Pumps

Type: Worthington
Size: One 3650 gpm @ 26' tdh
One 3120 gpm @ 26' tdh
One 3120 gpm @ 26' tdh (diesel)

PRIMARY TREATMENT

Comminution

Type: Chicago Pump Barminutor
Size: One Model C (36")

Grit Removal

Type: Aerated
Size: One 13' x 18 3/4' x 12 1/2'
(19,000 gal)
Retention: 9.1 min
Air Supply: Two Sutorbilt

Primary Sedimentation

Type: Jeffrey
Size: Two 125' x 20' x 12' (avg)
(374,000 gal)
Retention: 3.0 hr
Loading: Surface, 600 gal/ft²/day
Weir, 9900 gal/ft/day

CHLORINATION

Type: F & P
Size: One 200 lb/day

Chlorine Contact Chamber

Size: Two 47 1/2' x 7' x 9'7"
(37,400 gal)
Retention: 19 min

OUTFALL

To Mattagami River

SLUDGE HANDLING

Digestion System - single-stage,
concrete
Type: PFT (gas mixed)
Size: One 65' dia x 24' swd (80,000
cu ft or 0.50 mil gal)
Loading: 1.35 lb/cu ft/mo

'74 Review

GENERAL

The Timmins Water Pollution Control Plant is a 3.0 million gallon per day primary treatment plant consisting of grit removal, coarse screening, sedimentation, single-stage anaerobic sludge digestion and chlorination facilities. The plant is staffed by a chief operator, a maintenance technician and two operators.

During the year, the Ministry of the Environment approved the design report for expanding the plant to 6.0 million gallons per day. It is anticipated that tenders will be called early in 1976. The expanded plant, when completed in 1977, will include a new grit removal facility, a modified screening removal facility, additional sedimentation and chlorine contact tanks and a second stage digestion unit.

The conversion of the plant boiler to use natural gas was completed in January.

A new half-ton vehicle was purchased because the old vehicle was in need of extensive repairs. The old vehicle is still used in the winter for grit hauling and for the removal of screening material from the Mountjoy and Schumacker pumping stations.

A digester cleanout was performed in July because of digester operating problems. The expenditure for the works was financed from the project reserve fund.

The serviced population in 1974 was approximately 28,000 and the per capita flow was 175 gallons per day.

OPERATING COSTS

The total operating cost for the year was \$100,968, which represents an increase of 23 percent over the 1973 cost.

The average cost per million gallons of sewage treated was \$57 which is similar to the 1973 cost of \$59. The average cost per pound of BOD removed was 7 cents which is similar to the 1973 cost of 8 cents.

Additional expenditures were deducted from the reserve fund during the year for the following items:

1. Steel stairway on digester
2. Natural gas pipeline to plant
3. Flow meter parts
4. Design report for plant expansion
5. Submersible pump
6. Digester cleanout

The balance in the fund as of December 31, 1974 was \$8,722.04.

PLANT FLOWS AND CHLORINATION

The average daily flow for the year was 4.9 million gallons, which is 29 percent higher than the flow in 1973.

No metering problems were encountered during the year.

A total of 55,300 pounds of chlorine was used during the year, representing an average chlorine dosage of 3.1 mg/l.

PLANT EFFICIENCY

The raw sewage BOD and suspended solids concentrations averaged 126 mg/l and 325 mg/l respectively, which represented an increase in BOD and suspended solids concentrations of 5 percent and of 103 percent respectively from the previous year.

The final effluent BOD and suspended solids concentrations averaged 78 mg/l and 85 mg/l respectively which represent BOD and suspended solids removals of 38 percent and 74 percent respectively.

SLUDGE DIGESTION AND DISPOSAL

A total of 15.86 million gallons of raw sludge was pumped to the digester with a volatile matter content of 65 percent. A total of 3.81 million gallons of digested sludge was removed from the digester and hauled away by tank truck. This includes 2.14 million gallons of partially digested sludge hauled out during the digester cleanout in July.

The volatile matter content in the digested sludge solids was 51 percent and represented a volatile solids reduction in the digester of 44 percent. This is better than the reduction of 32 percent achieved in 1973 but does not pertain to the sludge hauled during the cleanout. A volatile solids reduction of 50 percent is considered satisfactory for primary treatment plants.

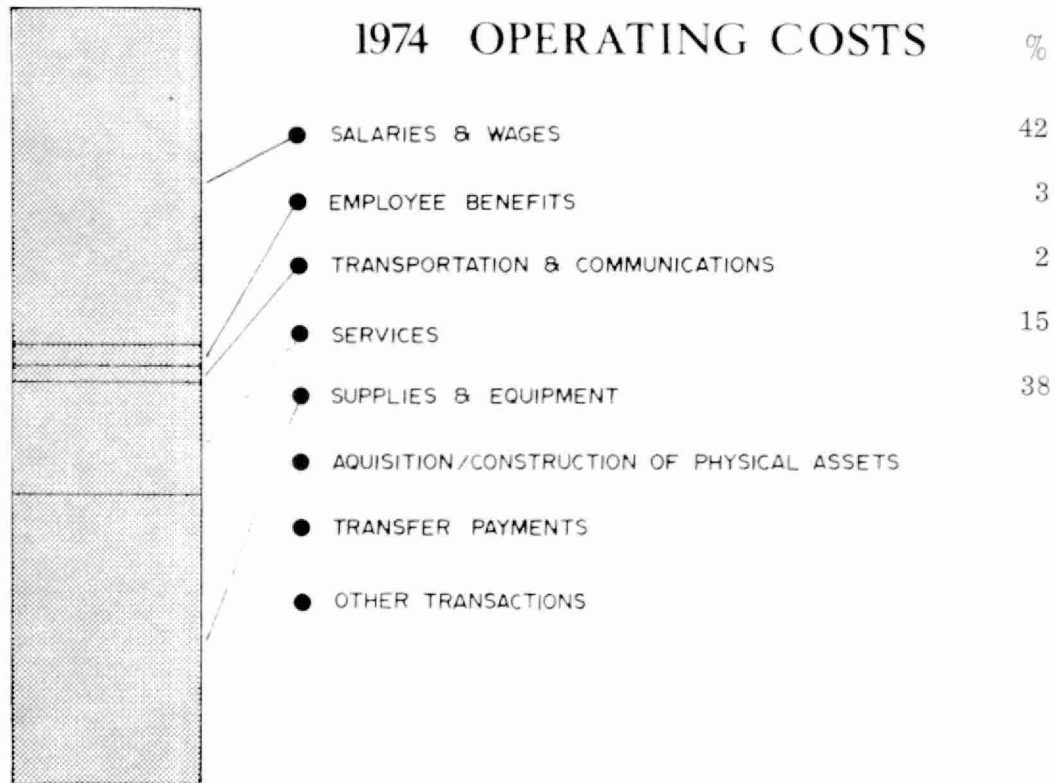
CONCLUSIONS

The general operation of the plant was satisfactory.

The plant expansion will be under way by 1976 and completed in 1977 and will result in increased operating and process efficiency.

The average daily flow for the year was 4.9 million gallons which represents an increase of 29 percent over the average daily flow in 1973.

ANNUAL COSTS



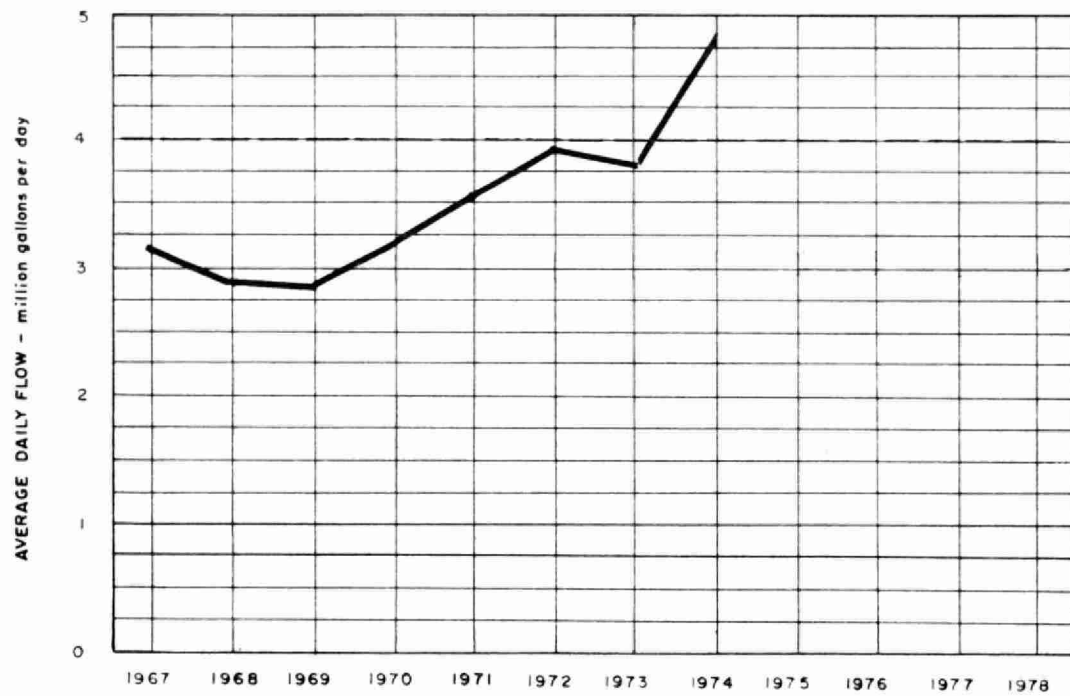
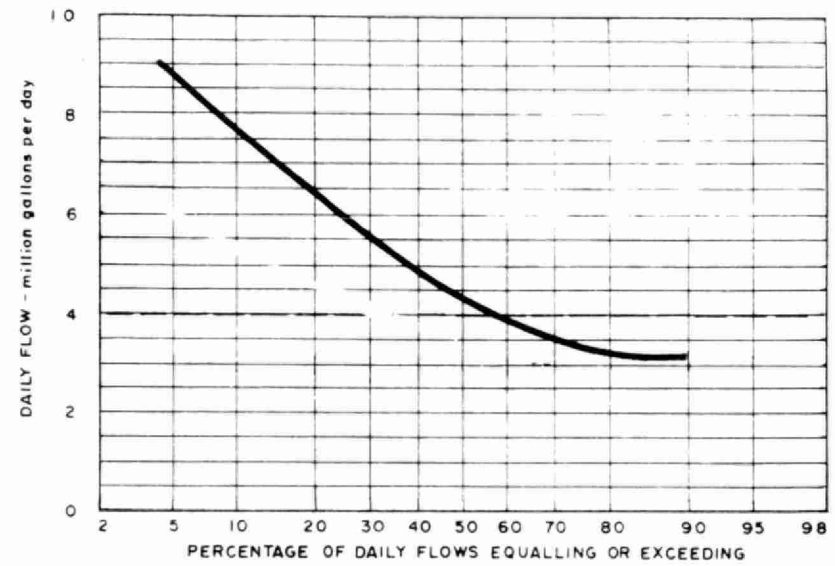
YEARLY OPERATING COSTS

YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G	¢/lb BOD
1969	1050	59,395	57	3
1970	1182	63,815	54	5
1971	1300*	67,241	52	5
1972	1441	81,849	57	10
1973	1387*	82,101	59	8
1974	1778	100,968	57	12

OPERATING EXPENDITURES

Regular Staff	\$ 35,766	\$
Casual (Unclassified) Staff	6,190	
TOTAL SALARIES AND WAGES		41,956
TOTAL EMPLOYEE BENEFITS		3,385
TOTAL TRANSPORTATION AND COMMUNICATIONS		1,984
Insurance	1,426	
Sludge Haulage	9,093	
Repairs and Maintenance	3,292	
Other Services	1,325	
TOTAL SERVICES		15,136
Machinery and Equipment	10,652	
Chemicals	6,018	
Utilities	12,181	
Other Supplies and Equipment	9,656	
TOTAL SUPPLIES AND EQUIPMENT		38,507
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		
TOTAL TRANSFER PAYMENTS		
OTHER TRANSACTIONS		
GRAND TOTAL	GRAND TOTAL	\$ 100,968

PROCESS DATA FLOWS

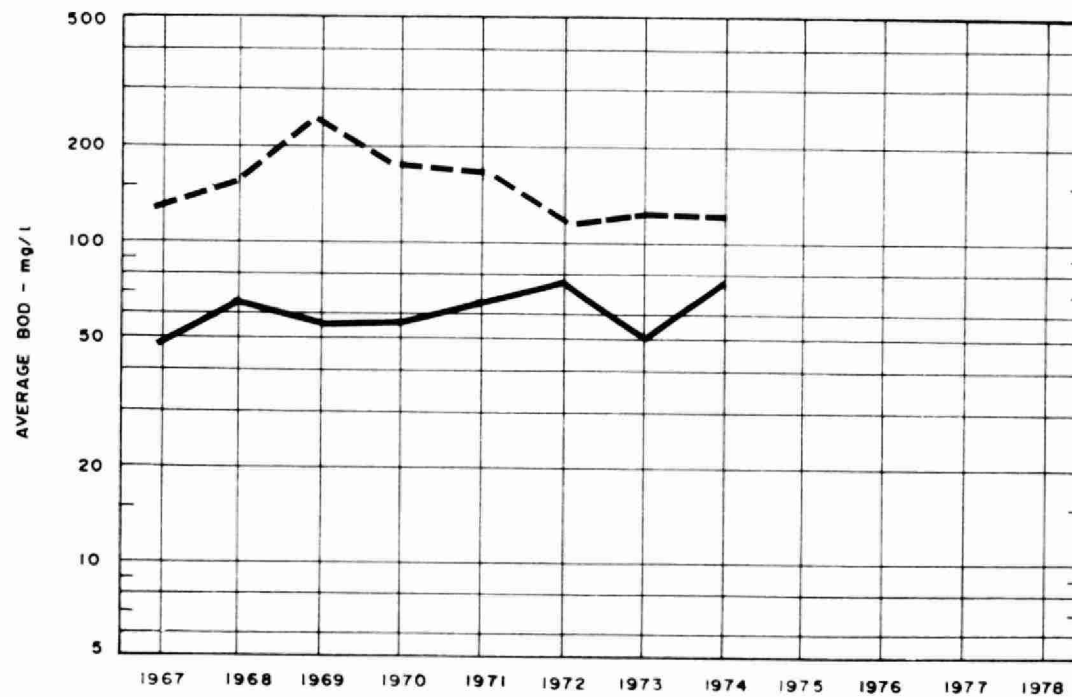
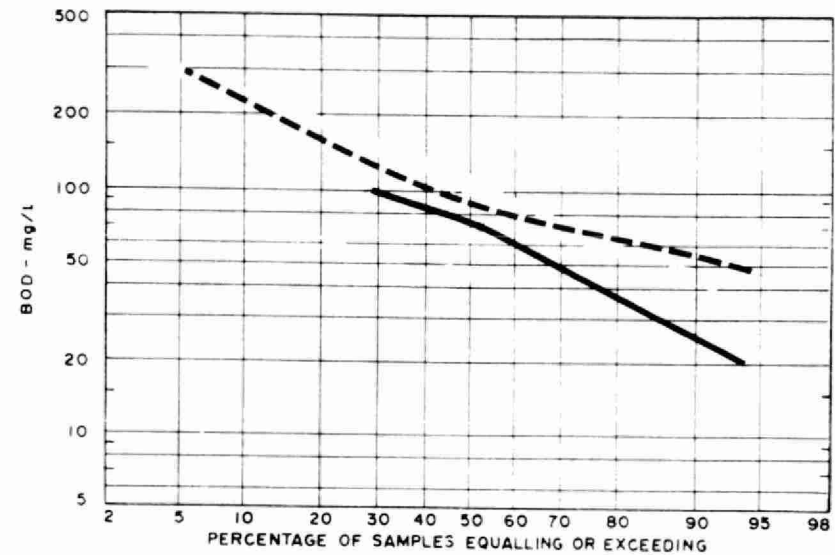


DESIGN CAPACITY — — — — —

PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	125	4.0	4.8	123	48	61	93.8	154	30	81	155.0	4.5	2.5
FEB	127	4.5	5.1	269	120	55	189.1	324	99	69	285.5	8.2	5.3
MAR	150	4.8	7.0	150	110	27	59.8	280	91	68	282.7	9.3	4.7
APR	241	8.0	12.0	120	55	54	156.6	246	88	64	380.6	6.9	2.9
MAY	200	6.4	8.4	93	95	0		299	85	72	427.8	5.6	5.3
JUNE	143	4.8	7.0					357	88	75	384.9		
JULY	164	8.6	11.0					449	123	73	536.2		
AUG	139	4.5	5.3	95	28	71	93.3	519	119	77	557.2	2.3	2.3
SEPT	122	4.1	5.1					540	91	83	546.4		
OCT	118	3.8	5.1	58	58	0		323	79	76	288.4	3.3	3.4
NOV	127	4.2	4.7	98	55	44	50.8	313	71	77	307.1	4.5	4.6
DEC	122	3.9	4.4	110	103	6	8.6	302	81	73	270.0	7.0	5.3
TOTAL	1778	-	-	-	-	-		-	-	-	4267.2	-	-
AVG.		4.9	MAXIMUM 12.0	126	78	38	121.9	325	85	74	355.6	5.9	4.6
No. of Samples	-	-	-	16	16	-	-	64	64	-	-	16	16

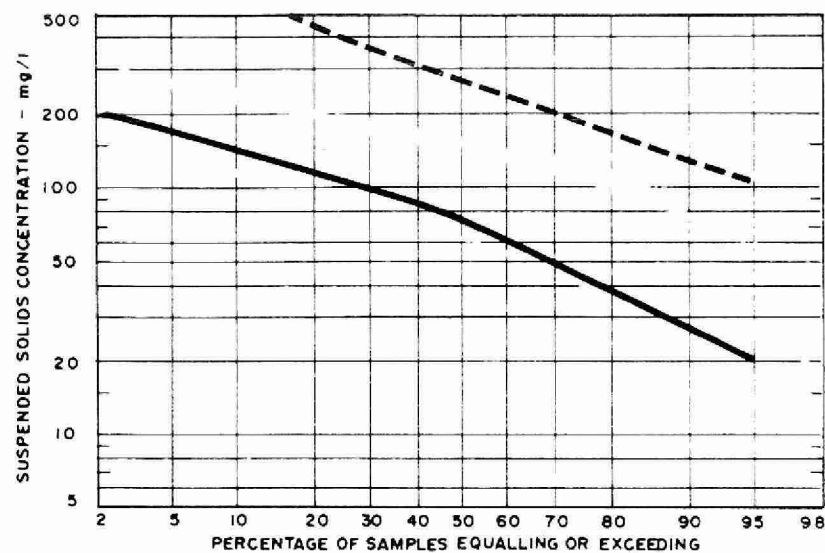
BIOCHEMICAL OXYGEN DEMAND



PLANT INFLUENT - - - - -

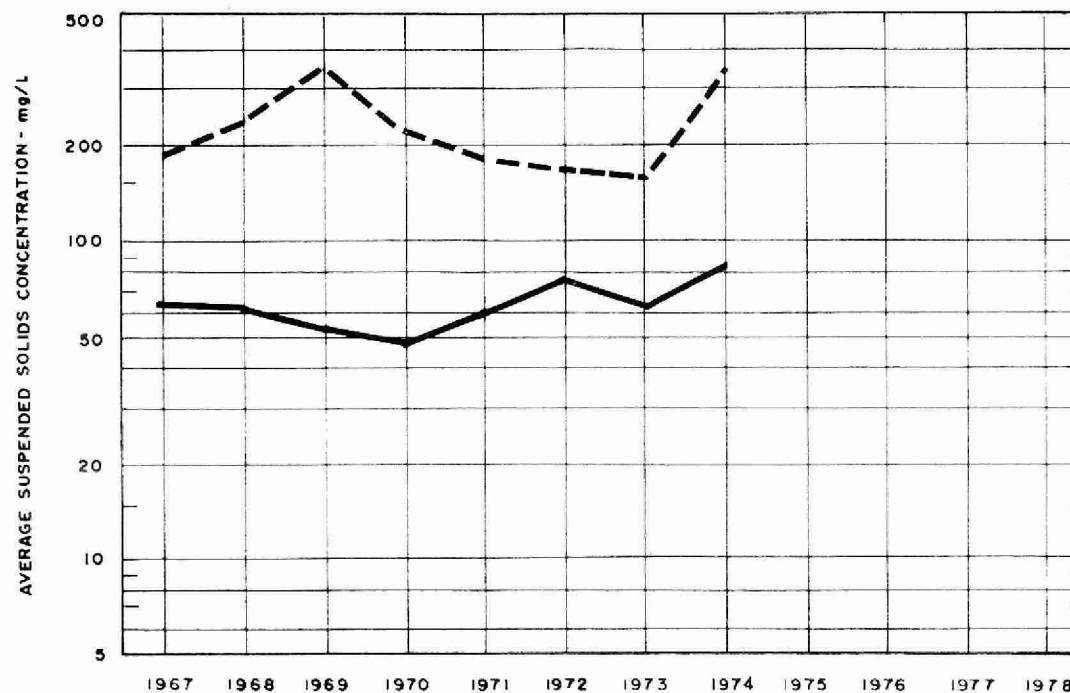
PLANT EFFLUENT —————

SUSPENDED SOLIDS

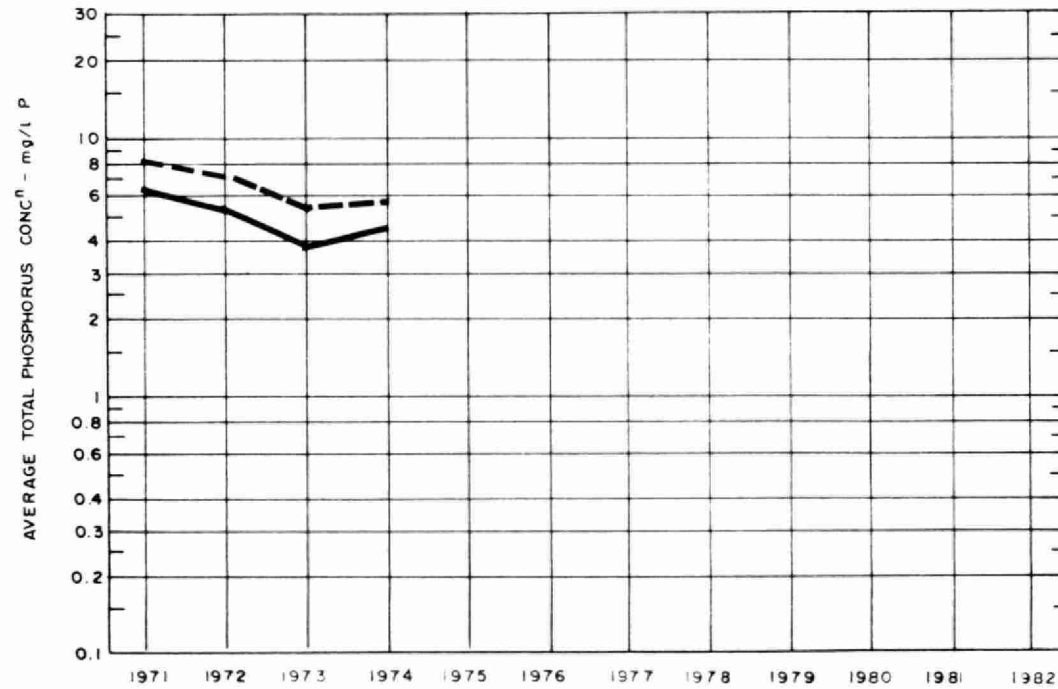
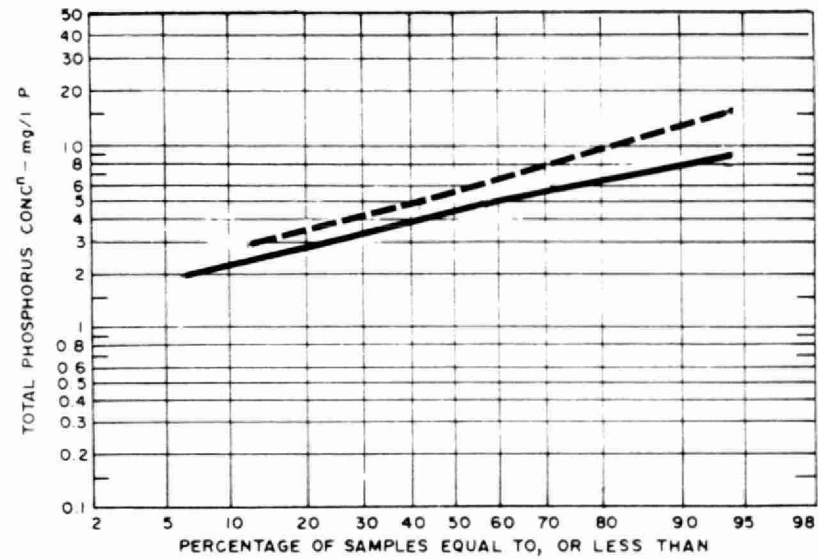


PLANT INFLUENT - - - - -

PLANT EFFLUENT _____



PHOSPHORUS

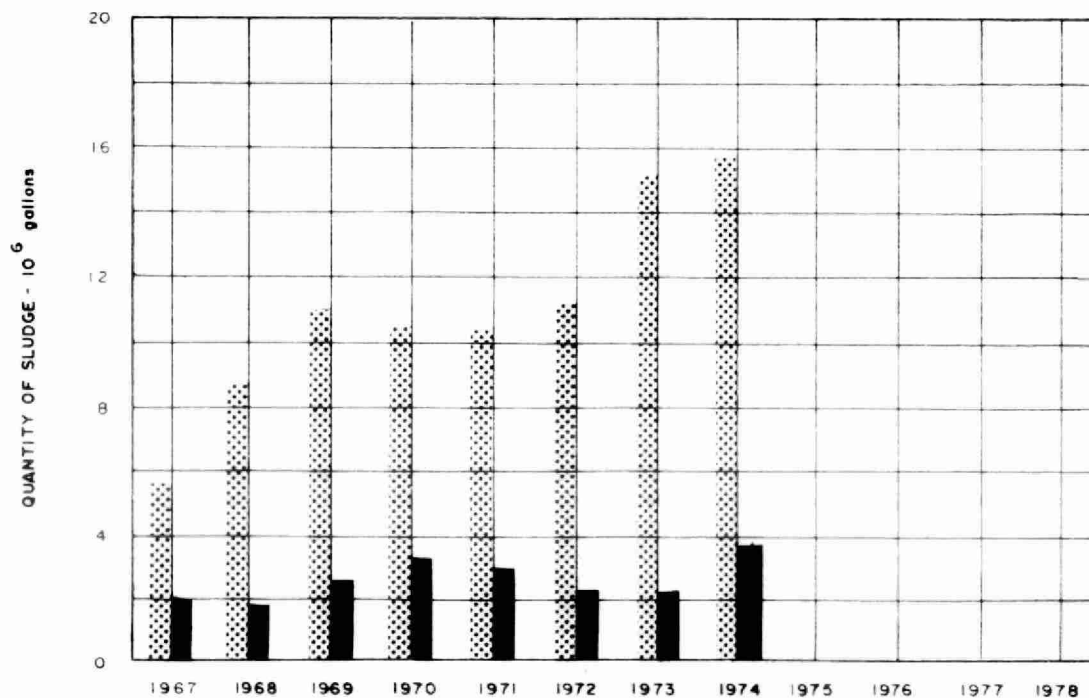
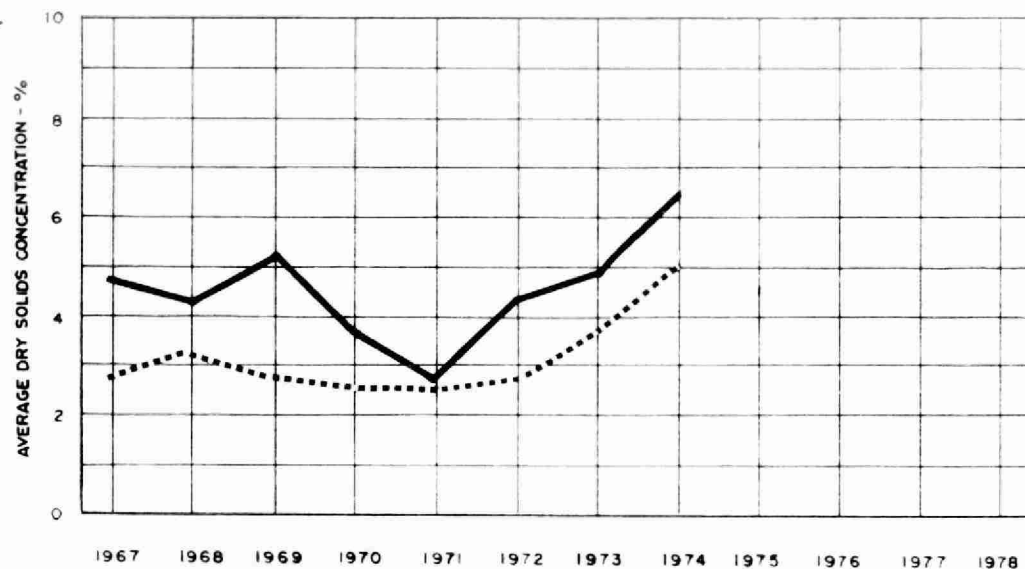


PLANT INFLUENT

PLANT EFFLUENT

DIGESTION

RAW SLUDGE
DIGESTED SLUDGE ———



RAW SLUDGE TO DIGESTER
DIGESTED SLUDGE REMOVED ———

TREATMENT DATA

MONTH	GRIT QUANTITY REMOVED cubic feet	CHLORINATION		SLUDGE DIGESTION and DISPOSAL							
		CHLORINE USED 10 ³ pounds	AVERAGE DOSAGE mg/l	RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	SLUDGE HAULED cubic yards
				QUANTITY 10 ⁵ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	QUANTITY REMOVED 10 ⁵ gallons	TOTAL SOLIDS %	VOLATILE SOLIDS %	TOTAL SOLIDS %	
JAN	510	4.9	3.9	9.9	4.2	70	2.1	4.5	62	.1	1215
FEB	191	4.3	3.4	7.7	2.4	67	1.7	5.3	69	.1	1013
MAR	129	4.4	3.0	9.7	2.9	73	1.4	5.6	62	.1	810
APR	602	4.7	1.9	29.7	5.2	55	1.4	8.3	48	.1	833
MAY	702	5.0	2.5	18.8	3.3	66	1.5	10.3	38	.1	877
JUNE	660	4.8	3.3	16.4	5.7	52	1.5	10.0	41	.04	900
JULY	433	4.8	2.9	13.7	2.4	78	15.4				9162
AUG	430	4.7	3.4	12.9	2.0	76	6.0				3565
SEPT	416	4.3	3.5	11.8	8.7	51	.7	6.5	38	.1	432
OCT	407	4.7	3.9	10.7	10.6	63	3.0	9.0	46	.1	1807
NOV	482	4.3	3.4	9.7	4.7	43	2.8	7.5	42	.1	1752
DEC	539	4.4	3.6	7.6	2.9	80	.6	6.6	60	.1	356
TOTAL	5501	55.3	—	158.6	—	—	38.1	—	—	—	22722
AVG.	3.1 cubic feet/mil gal	4.6	3.1	13.2	4.6	65	3.2	7.4	51	.1	1894

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